IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

CORNELIUS ANTONIUS HEZEMANS

Serial No.: 10/522,298

Filed: JANUARY 25, 2005

Atty. Docket: NL 020683

Group Art Unit: 2627

Examiner: LINH THI NGUYEN

CONF. NO.: 1496

TITLE: ACTUATOR CONTROLLER ON DISC DEVICE (as amended)

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Appellant herewith respectfully presents its Brief on Appeal as follows:

REAL PARTY IN INTEREST

The real party in interest is Koninklijke Philips Electronics N.V., a corporation of The Netherlands having an office and a place of business at Groenewoudseweg 1, Eindhoven, Netherlands 5621 BA.

RELATED APPEALS AND INTERFERENCES

To the best of Appellant's knowledge and belief, there are no related appeals or interferences.

STATUS OF CLAIMS

Claims 1-15 are pending in this application. Claims 1-15 are rejected in the Final Office Action that issued July 9, 2007. This rejection was upheld, in an Advisory Action that issued August 28, 2007. Claims 1-15 are the subject of this appeal.

STATUS OF AMENDMENTS

An Amendment After Final Action was filed August 28, 2007 in response to a Final Office Action that issued July 9, 2007. An Advisory Action of August 28, 2007 noted that the After Final Amendment was not entered, even though no amendment to the claims was provided in the Amendment. The Advisory Action upheld the rejection contained in the Final Office Action although modified the grounds originally stated in the Final Office Action. This Appeal Brief is in response to the Final Office Action of July 9, 2007 that rejected Claims 1-15 and the Advisory Action that upheld that rejection on modified grounds.

SUMMARY OF CLAIMED SUBJECT MATTER

It should be explicitly noted that it is not the Applicant's intention that the currently claimed method be limited to operation within this illustrative system beyond what is required by the claim language. Further description of the illustrative system is provided indicating portions of the claims which cover the illustrative system merely for compliance with requirements of this appeal without intending any further interpreted limitations be read into the claims as presented.

The present invention, for example as claimed in Claim 1, relates to a method of controlling a disc drive apparatus of a type shown in FIG. 1A including a sledge 10 radially displaceable with respect to an apparatus frame 3 (see, page 5, line 33 though page 6, line 4) and a platform 20 radially displaceable with respect to the sledge 10 (see, page 6, lines 9-10). The present method includes detecting at least one of a substantial deceleration, acceleration and stop of the sledge when moving radially by detecting a radial displacement of said platform with respect to

said sledge (see, page 8, lines 14-20 and page 10, lines 3-15. In accordance with the present system, the sledge is controlled based upon the detecting acts when detecting at least one of a substantial deceleration, acceleration and stop of the sledge when moving radially (see, page 8, lines 20-24 and page 10, lines 15-18).

The present invention, for example as claimed in Claim 8, relates to a disc drive apparatus of a type shown in FIG. 1A. The apparatus includes a radially displaceable scanning device that includes a sledge 10 radially displaceable with respect to an apparatus frame 3 (see, page 5, line 33 though page 6, line 4) and a platform 20 radially displaceable with respect to said sledge 10 (see, page 6, lines 9-10). The apparatus further includes a sledge stop detection device (decision unit 91, see, page 8, lines 17-20). By the read signal S_R, or other means such as a back-EMF (see, page 8, lines 4-13) the control unit 90 determines an X-displacement signal S_{XD} which is provided to the decision unit 91 (see, page 8, lines 14-18). The sledge stop detection device (decision unit 91) detects an X-displacement signal indicative of the sledge 10 coming

to a stop (see, page 8, lines 14-20). The sledge stop detection device (decision unit 91) includes a radial displacement detection device (for example, coupling 22 including spring wires 23, see, page 6, lines 21-30, or electromagnetic device detecting a back-EMF, see, page 8, lines 6-10) for detecting a radial displacement of said platform with respect to said sledge (see, page 7, lines 26-29). The control unit 90 controls the sledge 10 based upon the radial displacement detection device (see, page 8, lines 20-24).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether Claims 1-15 of U.S. Patent Application Serial No. 10/522,298 are properly rejected under by 35 U.S.C. §102(b) by U.S. Patent No. 6,229,773 to Chou ("Brand"). The Appellant respectfully wishes the Board to address the patentability of claims 1-15, based on the requirements of Claims 1 and 8. This position is provided for the specific and stated purpose of simplifying the current issue on appeal. However, the Appellants herein specifically wish to reserve the right to argue and address the patentability of each of the further claims at a later date should the separately patentable subject matter of those claims later become an issue. Accordingly, this limitation of the subject matter presented for appeal herein, specifically limited to discussions of the patentability of claims 1 and 8, is not intended as a waiver of Appellant's right to argue the patentability of the further claims and claim elements at that later time.

ARGUMENT

Claims 1-15 are said to be unpatentable over Chou. This position is respectfully traversed

The Chou Patent

Chou is directed towards an optical disk reading device that reduces fluctuation of the optical pickup head. In Chou, the optical pickup head (PUH in FIG. 1) is situated on a movable sled and the tracking coil 140 is located on the optical pick up head. In Chou, "[s]ince the Coil is not a strong rigid body, it physically vibrates or fluctuates relative to the Sled as the Sled is accelerated or decelerated" (see, FIG. 7D and the accompanying description contained in Col. 7, lines 65-67). To reduce the fluctuation of the tracking coil in Chou, the (emphasis added) "position of the Coils can be adjusted by ... an external exerting force" applied to the coil (Col. 8, lines 19-20). As should be clear from an examination of FIGs. 7 and 10-13, Chou in fact merely teaches applying a compensating external force to the coil.

As made clear by Chou, "In FIG. 7A, as the Sled with the Coil moves from position A to position B of the optical disc, <u>an exerting force is applied on the Sled as shown in FIG. 7B</u>." Clearly the force shown in FIG. 7B, namely <u>the force applied to the sled, has no compensating force</u>. As is further clear by each of FIGs. 10-13, the acceleration of the coil, f(s) (see, Col. 6, lines 54-59), is fed back to the coil control circuit for purposes of controlling the coil of the optical pickup head (see, Col. 6, lines 51-52). The only feedback in the sled control circuit is the feedback "Kv [that] is a <u>constant of an anti-electromotive force (EMF)</u>" termed a "Friction Back EMF in the figures. (See, Col. 9, lines 28-29.)

As should be clear from even a cursory review of Chou and FIG. 6A, the sled plant CSC 610 is utilized for control of the coil 650 and the sled plant 640 only receives a signal control signal FMO. While the block labeled -S in FIG. 6A, "represents a force direction induced by the inertial reaction between the sled plant 640 and the coil plant 650", as should be clear from FIG. 6A, the result of the force measurement -S is applied to the coil plant 650

to control the coil (see arrows entering block -S and pointing upward towards adder "+" for coil control).

Therefore, it is respectfully submitted that the method of claim 1 is not anticipated or made obvious by the teachings of Chou. For example, Chou does not disclose or suggest a method that amongst other patentable elements, comprises (illustrative emphasis provided):

> "detecting at least one of a substantial deceleration, acceleration and stop of the sledge when moving radially by detecting a radial displacement of said platform with respect to said sledge; and
> **controlling the sledge** based upon the detecting acts"

as required by claim 1 and as substantially required by claim 8.

Chou nowhere discloses or suggests detecting at least one of a substantial deceleration, acceleration and stop of the sledge by detecting a radial displacement of said platform with respect to said sledge and controlling the sledge based upon the detecting acts as required by claim 1, and substantially required by claim 8, of the present system. Even assuming, in arguendo, tracking coils 140 can be substituted for "the platform" in claim 1, there is no

showing of **controlling the sled/sledge** based upon these detecting acts in Chou as required by claim 1, and substantially required by claim 8, of the present invention, rather, Chou applies an external force on the tracking coils to control the fluctuation of the tracking coils versus the sled.

The Final Office Action has taken a position that Col. 8, lines 60-67 and Col. 9, lines 1-31 of Chou (see, Final Office Action, page 2, lines 12-14) show "controlling the sledge based upon the detecting acts", in fact, these sections of Chou describes no such interaction. While it is true that "FIG. 9 is a drawing, schematically illustrating an inertia interaction between the sled motor and the tracking coil" (see, Chou, Col. 8, lines 58-60), in Chou, the compensating force f(s), is only utilized to control the coil.

The sections cited in Chou merely show a series of equations (1), (2) and (3) used to derive the compensating force f(s) equation (4) (see, Col. 9, lines 7-17). The compensating force f(s) equation is a function of X1 and X2 which is the absolute position of the sled and the displacement of the coil relative to

the sled, respectively (see, Col. 8, line 66 to Col. 9, line 1). So while compensating force f(s) is a function of the sled position and the relative displacement of the coil, the compensating force f(s) is not applied to control the sled! As made abundantly clear by each of FIGs. 10-13, the compensation of the motion of the coil is performed by applying a compensating force f(s) to the coil. (For example, see, Col. 9, lines 16-23.)

In the Response to Arguments on pages 5-6 of the Final Office Action, the Final Office Action states on page 6 that "in order to reduce the fluctuation (coil velocity) detecting from the signals Tcs and Vspd, needs to include the sledge velocity, therefore, the sledge signal FMO is control[led] base[d] on the coil TRO signal of the PUH". The Applicant respectfully disagrees.

In Chou, the sled/sledge FMO signal is not controlled based on the coil TRO signal. While the Tcs and Vspd signals may implicitly include the sledge velocity, that does not mean that the FMO is controlled based on the coil TRO signal as suggested by the Final Office Action. The TRO signal is a different signal than the FMO signal and FIGs. 10-13 show that the FMO signal is not controlled

based on the coil TRO signal. Rather, Chou states that "the FMO signal is used to produce the TRO signal" (see, Col. 9, lines 30-31). In other words, a TRO signal may be based on the FMO signal but clearly the FMO signal is not based on the TRO signal or any feedback thereof.

The Advisory Action has taken a little bit of a different position than the Final Office Action stating that the CSC 610 receives three signals to compensate for irregular acceleration or deceleration. While this position is undisputed (see, FIG. 6A wherein CSC 610 receives signals FMO, Tcs and Vspd and Col. 7, lines 22-27), it has little to do with sled (sledge) control since the CSC 610 is only utilized to control the coil and is not utilized to control the sled (sledge). The sled plant 640 merely receives the signal FMO.

As made clear by Chou, "[t]he FMO is, for example, an voltage signal to exert a force to shift the Sled plant 640 for compensating the inertia reaction, in which the FMO can be timed with a factor to obtain a desired quantity." So Chou teaches, to

overcome inertia of the sled, a (fixed) factor may be applied to the force to overcome, in effect, a known inertia of the sled.

As should be clear from Chou, since the factor of the FMO signal does not depend on detecting at least one of a substantial deceleration, acceleration and stop of the sledge when moving radially by detecting a radial displacement of said platform with respect to said sledge, the sledge is not controlled based on detecting the substantial deceleration, acceleration and stop of the sledge.

Based on the foregoing, the Applicant respectfully submits that independent claims 1 and 8 are patentable over Chou and notice to this effect is earnestly solicited.

Claims 2-7 and 9-15 respectively depend from one of claims 1 and 8 and accordingly are allowable for at least this reason as well as for the separately patentable elements contained in each of the claims.

Thus the Examiner's rejection of Claims 1-15 should be reversed.

CONCLUSION

Claims 1-15 are patentable over Chou.

Thus the Examiner's rejection of Claims 1-15 should be reversed.

Respectfully submitted,

By

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APPENDIX A

CLAIMS ON APPEAL

1. A method of controlling a disc drive apparatus of a type comprising:

a sledge radially displaceable with respect to an apparatus frame; and

a platform radially displaceable with respect to said sledge;

the method of controlling comprising the acts of:

detecting at least one of a substantial deceleration, acceleration and stop of the sledge when moving radially by detecting a radial displacement of said platform with respect to said sledge; and

controlling the sledge based upon the detecting acts.

2. A method according to claim 1, wherein the method of detecting comprises an act of detecting a back-EMF in an electromagnetic device in an actuator for displacing said platform with respect to said sledge.

3. A method according to claim 1, comprising an act of detecting an optical read signal and deriving from the optical read signal an X displacement signal.

4. A method according to claim 1, wherein detecting the at least one of a substantial deceleration, acceleration and stop of said sledge comprises detecting a radial displacement of said platform with respect to said sledge exceeds a predetermined decision threshold.

5. A method according to claim 2, comprising an act of detecting an actuator control signal activated to counteract the radial displacement of said platform with respect to said sledge.

6. A method according to claim 5, wherein detecting the at least one of a substantial deceleration, acceleration and stop of said sledge comprises an act of detecting an actuator control signal exceeds a predetermined decision threshold.

7. A method for initializing a radial position of an optical lens in a start-up phase of a disc drive apparatus, the method comprising acts of:

exerting a force on said sledge;

detecting the at least one of a substantial deceleration, acceleration and stop of the sledge using the method of detecting according to claim 1; and

stopping said force as soon as a substantial radial displacement of said platform with respect to said sledge is detected.

8. Disc drive apparatus, comprising:

a radially displaceable scan means, comprising:

a sledge radially displaceable with respect to an apparatus frame;

a platform radially displaceable with respect to said sledge;

said apparatus further comprising:

sledge stop detection means for detecting said sledge coming to a stop;

said sledge stop detection means comprising radial displacement detection means for detecting a radial displacement of said platform with respect to said sledge, and

controlling means for controlling the sledge based upon the radial displacement detection means.

9. The apparatus according to claim 8, further comprising:

an electro-motive platform actuator configured to displace said platform with respect to said sledge;

wherein said radial displacement detection means are designed to detect a back-EMF in said electro-motive platform actuator.

10. The apparatus according to claim 8, further comprising:

an optical system for scanning a disc, the optical system defining an optical path of which at least a part is substantially fixed with respect to said sledge and comprising an optical element which is fixed with respect to said platform;

wherein said radial displacement detection means are designed to detect an optical read signal and to derive from the optical read signal an X displacement signal.

11. The apparatus according to claim 8, wherein said radial displacement detection means are designed to determine that an at least one of a substantial deceleration, acceleration and stop of the sledge occurs when a detected radial displacement of said platform with respect to said sledge exceeds a predetermined decision threshold.

12. The apparatus according to claim 8, further comprising:

a controllable platform actuator associated with said sledge and said platform configured to radially displace said platform with respect to said sledge in response to an actuator control signal;

a control unit configured to generate a platform control signal for said platform actuator to counteract a radial displacement of said platform with respect to said sledge;

wherein said radial displacement detection means are designed to detect said actuator control signal.

13. The apparatus according to claim 12, wherein said radial displacement detection means are designed to determine that an at least one of a substantial deceleration, acceleration and stop of said sledge occurs when a detected actuator control signal exceeds a predetermined decision threshold.

14. Apparatus according to claim 8, further comprising:

a controllable sledge actuator configured to move said sledge radially with respect to said apparatus frame;

a control unit configured to control said sledge actuator;

said control unit configured to respond to said radial displacement detection means to switch off said sledge actuator when said radial displacement detection means indicates that said sledge has come to a stop.

15. Apparatus according to claim 14, wherein a displacement range of said sledge with respect to said apparatus frame is restricted by at least one end stop;

wherein said control unit is designed, in an initializing phase, to energize said sledge actuator such as to move said sledge towards said end stop;

and wherein said control unit is configured to switch off said actuator as soon as said sledge has reached said end stop.

APPENDIX B

Evidence on Appeal

None

APPENDIX C

Related Proceedings of Appeal

None